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10/735,160	12/12/2003	Sridhar Balasubramanian	03-1840	1647

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EXAMINER
GU, SHAWN X

ART UNIT	PAPER NUMBER
2189	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2007*.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12 and 15-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12 and 15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office action is in response to the amendment filed on 16 April 2007.

Claims 1, 3-12, and 15-20 are pending. Claims 2, 13 and 14 are cancelled. All

objections and rejections not repeated below are withdrawn.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

3.   Claims 3, 5, 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

Claims 3, 5, 9 and 10 each recite the limitation "an operator", while claim 1, the

claim which the instant claims are dependent from already contain "an operator". It is

unclear to the Examiner whether the operators in the instant claims are the same entity

as the operator claim 1. If they are not, then they should be replaced with "a second

operator", "a third operator", a "fourth operator" and a "fifth operator". Appropriate

correction is require.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious
> at the time the invention was made to a person having ordinary skill in the art to which said
> subject matter pertains. Patentability shall not be negatived by the manner in which the invention
> was made.

5.   Claims 1, 3, 4, 6-8, 10-12, 15, 16, and 18-20 are rejected under U.S.C. 103(a) as

being unpatentable over Reed et al. [5,845,095] (hereinafter "Reed"), in further view of

Bell [5,410,707] (hereinafter "Bell") and Huang et al. [US 6,718,274] (hereinafter

"Huang").

Per claims 1, 12 and 18, Reed teaches a storage controller that is coupled

between a computer system, which is external to the storage controller, and a storage

system that includes at least one storage device, the storage controller comprising:

a memory (controller NVRAM 220, see Fig. 2, or the memory device holding the

controller configuration information, from which the information is transferred to the

CBU, see Reed, col. 8, lines 39-45);

receiving means for receiving backup parameters from the computer system (see

Reed, col. 4, lines 11-49, the backup parameters are received from the CBUs 226 after

controller replacement; also see col. 9, lines 25-44, the NVM receives the controller

configuration information pages);

the backup parameters, set by an operator of the computer system, defining how

a backup operation will be executed (see Reed, col. 4, lines 5-10, organizing controller

configuration information into page format before backup, thereby defining the backup

operation to be performed by storing the data in page format; also see col. 10, lines 31-

42);

invoking means for invoking a backup operation using the backup parameters

(see Reed, col. 6, lines 28-30, storing/backup of the controller configuration information

can be invoked by an updated command entered by the user which updates the

network address; also see col. 11, claim 1, the controller backs up the controller

configuration information in response to the creation of controller configuration

information pages; furthermore the backup device is a memory and the controller is a

processor, see col. 9, lines 42-44); and

responsive to a give event (copy controller configuration information into CBU

when controller's address is modified by a system user, see Reed, col. 6, lines 28-30):

executing means for executing the backup operation to copy configuration

information from the memory to a memory module (see Reed, col. 8, lines 35-45).

Reed does not teach that the memory module is a removable non-volatile

memory module, but instead it is only disclosed as a random access memory (see

Reed, lines 35-36). However, Reed teaches that a non-volatile memory module is used

to store the controller configuration information for persistent storage in the event of a

power loss (see Reed, col. 3, lines 35-67). Bell further teaches using a removable non-

volatile memory to store controller configuration information (see Bell, col. 4, lines 9-28,

detachable flash memory card) to provide increased mobility and flexibility. For

instance, it is clear that a flash memory card taught by Bell is replaced and transported

much more easily than an integrated memory module or a DRAM module connected to

a slot. Therefore, it would have been obvious to one ordinarily skilled in the art at the

time of the Applicant's invention to combine the teachings of Reed and Bell in order to

provided increased mobility and flexibility for storing controller configuration information.

Bell further teaches a Personal Computer Memory Card International Association

(PCMCIA) slot (see Bell, Col. 4, Ln. 35-43), but does not teach determining means for

determining if the removable non-volatile memory module is inserted in the PCMCIA

slot, and responsive to a positive determination, executing the above backup operation.

However, Huang teaches detecting the presence of a flash memory module on a

PCMCIA slot and perform certain operations with the memory module if it is connected

(see Huang, col. 6, lines 43-67 and col. 8, lines 27-45), and the detection logic can be

utilized manually whenever its function is required (see col. 8, lines 4-27). It is clear that

determining the presence of a memory module when a write to the module is required

avoids wasting execution time and system resources such as data bus if the target

memory module is not present. Therefore, it would have been obvious to one of

ordinary skill in the art at the time of the Applicant's invention to combine the teachings

of Reed, Bell and Huang in order to avoid wasting execution time and system

resources.

It is also clear that claim 12's storage controller performs the method of claim 1, which also substantially discloses claim 18's apparatus.

Per claim 3, Reed in view of Linux further teaches the given event is a command that was entered by an operator through one of interface software and a boot menu console (see Reed, col. 6, lines 28-30, the command entered by the user to modify the network address).

Per claims 4 and 19, Reed further teaches responsive to a restore event, restoring the configuration information from the removable non-volatile memory module to the first storage controller (see Reed, col. 8, lines 43-48, controller 214 or 218 ... receive the controller configuration information page from the first random access memory/CBU).

Per claims 6 and 7, Reed further teaches disconnecting the removable non-volatile memory module from the first storage controller and connecting the removable non-volatile memory module to a second storage controller (see Reed, col. 3, lines 60-65, removing the first controller and replacing it with a second controller).

Per claims 8 and 20, Reed further teaches responsive to a restore event, restoring the configuration information from the removable non-volatile memory module

to the second storage controller (see Reed, col. 3, lines 11-34 and col. 8, lines 43-48,

the event is any hardware change or software command, or an combination of the two

that led to the restore operation).

Per claim 10, Reed further teaches determining whether the configuration

information is compatible with the second storage controller (see Reed, col. 4, lines 45-

67, error detection using checksum algorithm); and

responsive to the configuration information not being compatible with the second

storage controller, notifying an operator of incompatible configuration information (see

Reed, col. 5, lines 13-21, the mechanism that replaces missing pages).

Per claims 11 and 15, Reed further teaches the configuration includes at least

one of configuration data, firmware, bootware image, and component summary data

(see Reed, col. 3, lines 63-67).

Per claim 16, the combined teaching of Reed and Bell further discloses the

removable non-volatile memory module is a flash memory module (see Bell, col. 4, lines

9-28).

6.   Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Reed, Bell and Huang, in further view of Green et al. [2003/0167380 A1] (hereinafter

"Green").

Per claims 5 and 9, the combined teach of Reed, Bell and Huang is silent on

whether the restore event is a command that was entered by an operator through one of

interface software and a boot menu console, and the restore event in Reed could be

done automatically or manually. However, Reed teaches an interface software (see col.

6, lines 28-30, system user modifying controller's network address) and a boot menu

console (see Reed, col. 3, lines 10-15, a network management system must have a

boot menu console), and in most computer management systems or operating system

the user is provided a command to restore data. Assuming Reed's restore is performed

automatically without user intervention, then it is clear that one advantage of enabling a

system administrator/user to enter a command to initiate the restore operation is that

human control is retained and greater flexibility and easy of use are provided when

combined with automatic restore. Green teaches a restore command entered by an

operator through one of interface software and a boot menu console (see Green, Fig.

24) in order to restore data that was previously backed up. Therefore, it would have

been obvious to combine the teachings of Reed, Bell, Huang and Green, in order to

provide greater flexibility and easy of use, as well as retaining human control over the

restore process.

7.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed,

Bell and Huang, in further view of Ban [5,404,485] (hereinafter "Ban").

Per claim 17, the combined teaching of Reed, Bell and Huang does not

specifically teach that the flash memory module has a flash file system format for storing

data. However, Ban teaches a flash memory module that uses a flash file system

format (Col. 1, Ln. 5-10) for providing compatible data management with existing

operating systems (Col. 1, Ln. 29-49). Therefore, it would have been obvious to one

ordinarily skilled in the art at the time of the Applicant's invention to combine Ban's

teaching with the combined teaching of Reed, Bell and Huang in order to provide

compatible data management on the flash memory by implementing a flash file system.

Response to Arguments

8.   Applicant's arguments with respect to claims 1, 3-12 and 15-20 have been

considered but are moot in view of the new ground(s) of rejection. This Office action is

not made final as the Examiner introduced new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn Gu whose telephone number is (571) 272-0703. The examiner can normally be reached on 9am-5pm, Monday through Friday.
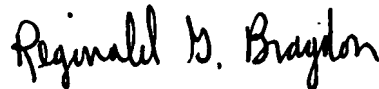
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawn X Gu
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Art Unit 2189

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26 June 2007